DEPARTMENT of ENVIRONMENTAL SERVICES Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: SMITH POND	Lake Area (ha):	10.76
Town: WASHINGTON	Maximum depth (m):	9.3
County: Sullivan	Mean depth (m):	5.0
River Basin: Merrimack	Volume (m³):	538500
Latitude: 43°09'18" N	Relative depth:	2.5
Longitude: 72°01'49" W	Shore configuration:	1.00
Elevation (ft): 1075	Areal water load (m/yr):	: 11.71
Shore length (m): 1100	Flushing rate (yr^{-1}) :	2.30
Watershed area (ha): 199.3	P retention coeff.:	0.53
<pre>% watershed ponded: 0.0</pre>	Lake type:	natural

BIOLOGICAL:	7 January 1998	17 July 1997
DOM. PHYTOPLANKTON (% TOTAL) #1	ASTERIONELLA 50%	DINOBRYON 60%
#2	DINOBRYON 45%	ASTERIONELLA 35%
#3	RHIZOSOLENIA 4%	
PHYTOPLANKTON ABUNDANCE (units/mL)		
CHLOROPHYLL-A (µg/L)		5.12
DOM. ZOOPLANKTON (% TOTAL) #1	KERATELLA 50%	CALANOID COPEPOD 75%
#2	SYNCHAETA 16%	
#3	KELLICOTTIA 13%	
ROTIFERS/LITER	125	<1
MICROCRUSTACEA/LITER	8	100
ZOOPLANKTON ABUNDANCE (#/L)	149	100
VASCULAR PLANT ABUNDANCE		Sparse
SECCHI DISK TRANSPARENCY (m)		5.4
BOTTOM DISSOLVED OXYGEN (mg/L)	9.5	0.6
BACTERIA (E. coli, #/100 ml) #1		
#2		
#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 4.9 Hypolimnion volume (m^3) : 14500 Anoxic volume (m^3) : 2750

CHEMICAL:			SMITH POR		
	7 January 1998		17 3		
DEPTH (m)	3.0	6.0	2.0	5.5	8.5
pH (units)	6.3	6.3	6.8	6.0	6.0
A.N.C. (Alkalinity)	2.9	3.7	3.3	2.4	4.4
NITRATE NITROGEN	< 0.05	< 0.05		< 0.05	< 0.05
TOTAL KJELDAHL NITROGEN	0.30	0.20	0.20	0.20	0.30
TOTAL PHOSPHORUS	0.006	0.006	0.011	0.017	0.015
CONDUCTIVITY (µmhos/cm)	25.3	25.6	23.2	21.6	23.7
APPARENT COLOR (cpu)	6	8	< 5	8	9
MAGNESIUM			0.38		
CALCIUM			2.0		
SODIUM			1.5		
POTASSIUM			0.40		
CHLORIDE	< 2	< 2	< 2	< 2	< 2
SULFATE	5	5	5	4	4
TN : TP	50	33		12	20
CALCITE SATURATION INDEX			3.7		

All results in mg/L unless indicated otherwise

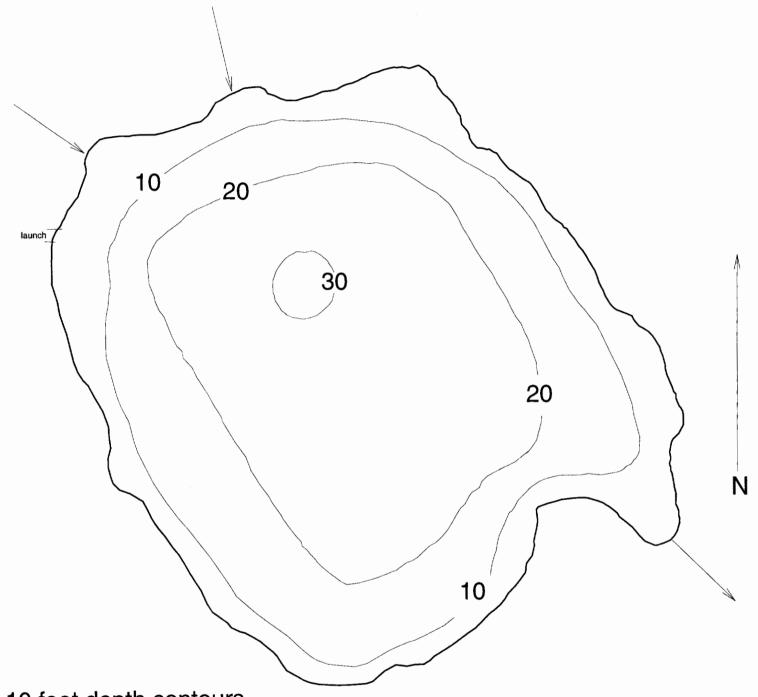
TROPHIC CLASSIFICATION: 1997

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
3	1	0	1	5	Oligo.

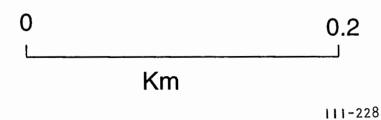
COMMENTS:

- Smith Pond was previously surveyed in 1986 and was also classified as oligotrophic at that time.
 The major difference in trophic criteria between the two dates was in bottom dissolved oxygen.
 Less oxygen was present in 1997, but this was probably due to a sampling date later in the summer than in 1986.
- 2. During the winter, Asterionella and Dinobryon were in sufficient quantities to impart a fishy odor. Water immediately under the ice had a greenish color.
- 3. Good launch site.
- 4. One loon and many tadpoles observed.
- 5. Five cottages present along the shore.

Smith Pond Washington



10 foot depth contours



FIELD DATA SHEET

LAKE: SMITH POND DATE: 07/17/97

TOWN: WASHINGTON

WEATHER: SUNNY & WARM; 90s

DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
0.1	24.6	8.3	98 %
1.0	24.3	8.3	98 %
2.0	24.1	8.2	97 %
3.0	23.8	8.2	95 %
4.0	22.5	9.8	110 %
5.0	18.1	11.9	123 %
6.0	14.0	11.3	109 %
7.0	11.4	7.9	70 %
8.0	9.8	3.1	27 %
9.0	9.2	0.6	5 %

SECCHI DISK (m): 5.4

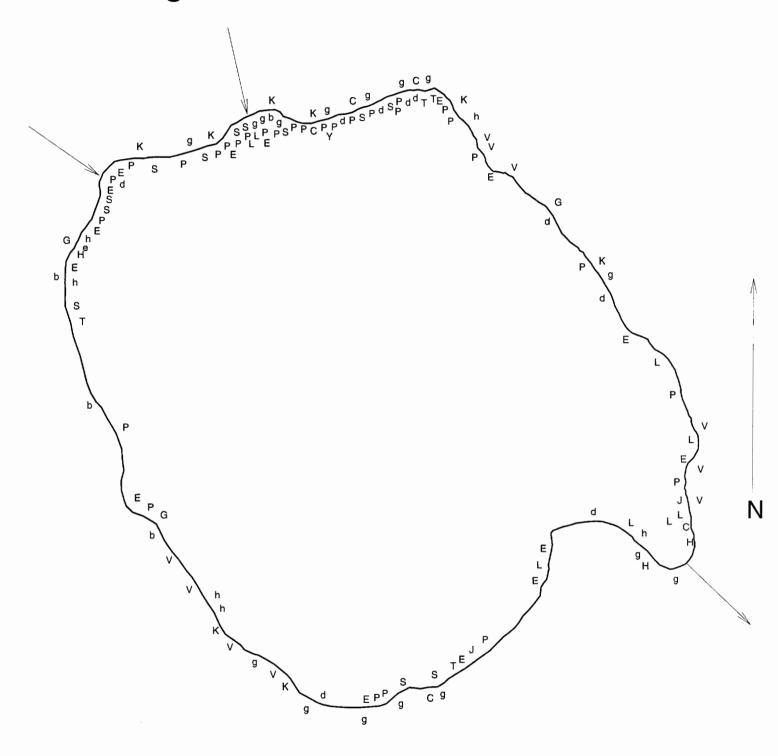
COMMENTS:

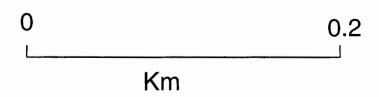
BOTTOM DEPTH (m): 9.3

TIME: 1115

*Dissolved oxygen values are in mg/L

Smith Pond Washington





AQUATIC PLANT SURVEY

LAK	E: SMITH POND	TOWN: WASHINGTON	DATE: 07/17/97
Vorr	PLANT NAME		ABUNDANCE
Key	GENERIC	COMMON	ABUNDANCE
J	Juncus	Rush	Sparse
L	Lobelia dortmanna	Water lobelia	Sparse
С	Lysimachia terrestris	Swampcandle	Sparse
Y	Nuphar	Yellow water lily	Sparse
G	Gramineae	Grass family	Sparse
V	Vaccinium corymbosum	High-bush blueberry	Scattered
Н	Equisetum	Horsetail	Sparse
E	Eriocaulon septangulare	Pipewort	Sparse
P	Pontederia cordata	Pickerelweed	Scattered
е	Eleocharis	Spike rush	Sparse
Т	Typha	Cattail	Sparse
h	Hypericum	St. John's-wort	Sparse
b	Scirpus	Bulrush	Sparse
d	Dulichium arundinaceum	Three-way sedge	Sparse
S	Sparganium	Bur reed	Sparse
g	Myrica gale	Sweet gale	Scattered
k	Kalmia latifolia	Mountain laurel	Scattered
4			

OVERALL ABUNDANCE: Sparse

GENERAL OBSERVATIONS:

- 1. Emergent plant growth was common along the northern shore near the tributary mouths.
- 2. Sweet gale and mountain laurel was around most of the shore, out of the water.
- 3. Shoreline was generally rocky with steep drop off in areas -- not conducive for rooted plant growth.